New Hampshire
Diabetes Data, 2003

New Hampshire Department of Health and Human Services
Division of Public Health Services
Bureau of Prevention Services
Diabetes Education Program

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June 2004

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MESSAGE FROM THE GOVERNOR

This report shows the growing danger of diabetes in New Hampshire. Over 6% of our citizens now suffer from this disease. I hope this report serves as a reminder to the citizens of our state of the importance of fitness and good nutrition.

I look forward to working with the Department of Health and Human Services to create a thorough plan to make the public aware of the dangers of diabetes and work on improving methods to prevent this debilitating disease in the future. We must work collaboratively with the communities and private groups across the state to highlight diabetes and its impact in New Hampshire.

Craig R. Benson, Governor

MESSAGE FROM THE COMMISSIONER

Diabetes is a disease that is growing in prevalence across the nation, as well as in New Hampshire. The financial impact of this illness on the health care as well as the taxpayers of the state is staggering. This report shows a connection with the increasing levels of obesity and lack of activity with the higher rate of diabetes.

The Department of Health and Human Services must educate and encourage better eating and wellness habits to the residents of New Hampshire if we are to reduce the threat of diabetes here. We look forward to taking this and other opportunities to provide awareness about the disease and offer prevention strategies to the state.

I would like to thank the Division of Public Health Services, Bureau of Prevention Services for their report on diabetes in New Hampshire. I know that they have spent considerable effort in producing a comprehensive study. The Department looks forward to using these findings to help us develop a long-term strategy to reduce the effects of diabetes to the citizens of the state.

John A. Stephen, Commissioner
New Hampshire Department of Health and Human Services

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EXECUTIVE SUMMARY

- Approximately 6.2% of the adult population of New Hampshire had been diagnosed with diabetes as of 2002.
    - The prevalence of diabetes increased with increasing age going from 1.0% among persons 18-24 years of age to 17.6% among persons ≥65 years old.
- Modifiable risk factors for diabetes include overweight and physical inactivity.
    - 56% of adults in New Hampshire were overweight in 2002.
    - 20% of adults in New Hampshire reported no leisure-time physical activity during the previous month in 2002.
- 68% of adults with diabetes in New Hampshire had received an influenza immunization in the past year in 2002.
- 58% of adults with diabetes in New Hampshire had ever been immunized against pneumococcal pneumonia in 2002.
- 80% of adults with diabetes in New Hampshire had a dilated eye examination in the past year in 2002.
- 78% of adults with diabetes in the state had a foot exam in the past year in 2002.
- 92% of adults with diabetes in New Hampshire reported they had a glycosylated hemoglobin measurement in the past year in 2002.
- 64% of adults with diabetes in New Hampshire had hypertension in 2001.
- 57% of adults with diabetes in New Hampshire had elevated cholesterol in 2001.
- 17% of adults with diabetes in New Hampshire were smokers in 2002.
- There were 15,163 hospitalizations in the state among persons with diabetes in 2001.
- There were 243 lower extremity amputations among persons with diabetes in New Hampshire in 2001.
- 82 persons with diabetes in the state developed end stage renal disease in 2001.
- There were 963 deaths in New Hampshire in 2001 in which diabetes was the primary or contributing cause.

INTRODUCTION

Diabetes is one of the leading causes of disability and death in the United States. It is a leading cause of blindness, end-stage renal disease, and lower limb amputation (1). Heart disease and stroke are two to four times more common in persons with diabetes and account for two-thirds of deaths among persons with diabetes (1). It is estimated that the national health care costs for diabetes are nearly $100 billion dollars a year (1). Diabetes is the 6th leading cause of death in the United States. The prevalence of diagnosed diabetes among adults in the United States increased by 49% between 1990 and 2000 (1). The prevalence of diabetes is expected to increase in the future.

This publication is the third annual compilation of data on diabetes from the New Hampshire Department of Health and Human Services. The data can be used for multiple purposes: 1) to document the magnitude of the public health problem; 2) to monitor disease trends over time; 3) to detect changes in health care practices; 4) to evaluate control strategies; and, 5) to facilitate planning.

NEW FEATURES IN THIS REPORT

- Prevalence of diabetes, overweight and physical inactivity is presented by demographic groups (i.e., age, gender, income, and education).
- Data from questions in the optional diabetes module of the Behavioral Risk Factor Surveillance System are presented. This includes information for adults with diabetes on:
  - whether they are taking insulin or oral medications,
  - how often they check their blood glucose,
  - how often they check their feet for sores and if they have ever had any sores that took more than four weeks to heal,
  - how often they have seen a health care provider for diabetes care,
  - if they have retinopathy,
  - if they have ever taken a course on diabetes self-management.
- The general health status of adults with and without diabetes is presented.
- Diabetes-related hospitalizations are presented by sex and payor.
- Diabetes-related lower extremity amputations are presented by age-group, sex and payor.
- Diabetes-related mortality is presented by age-group and sex.
- Clinical prevention practices for adults with diabetes are presented for 12 clinic sites that underwent chart audits.
- Information on the collection of minority health data from the New Hampshire REACH 2010 Initiative is discussed.

FREQUENTLY ASKED QUESTIONS

Why are data not presented by race or ethnicity?

Based on the 2000 United States Census, New Hampshire's population is approximately 96.0% white, 1.3% Asian, 0.7% African American, 0.2% American Indian, and 0.6% persons reporting some other race. About 1.7% of the population is of Hispanic or Latino origin. Because no single racial or ethnic minority group exceeds 1.7% of the total population, the number of diabetes-related events in these groups is too small to allow meaningful analysis. As the state's demographics change and as data collection techniques improve, it may be possible to present data on racial and ethnic minorities in the future.

What are the Centers for Disease Control and Prevention?

The Centers for Disease Control and Prevention (CDC) are part of the United States Department of Health and Human Services. CDC is considered the nation's prevention agency; it focuses on public health measures to prevent disease, disability, and death. The national diabetes control program, which is part of CDC, provides funds and guidance to states for their diabetes control efforts.

I would like to see data for town, but cannot find this information in the report. Why doesn't this report show town-level data?

New Hampshire has a relatively small population of 1.2 million people divided among 234 cities and towns. In a given year, the number of illnesses or deaths related to diabetes is too small to generate meaningful results on a town level.

Some of the information in the report is identified as "age-adjusted". What does this mean and why is it done?

To compare populations where the distribution of age groups is different, an adjustment needs to be made. For example, the rate of diabetes in New Hampshire may appear higher than that of the United States. However, this may be due to New Hampshire having proportionally more older people than the United States. By age-adjusting the data using the 2000 standard United States population, the rates can be compared without concern about differences in the age distribution of the two populations.

METHODS

The format for this report is based on the components of the diabetes surveillance system for New Hampshire. The system was developed in 2000 and consists of 13 measures:

1. Diabetes prevalence
2. Overweight
3. Physical inactivity
4. Influenza immunization
5. Pneumococcal immunization
6. Dilated eye examination
7. Foot examination
8. Glycosylated hemoglobin measurement
9. Diabetes hospitalization
10. Lower extremity amputation
11. End stage renal disease
12. Diabetes mortality
13. Diabetic ketoacidosis mortality

The measures for diabetes surveillance in New Hampshire were adopted from the recommendations of national organizations. Measures #1-7 and 9-13 are from *Indicators For Chronic Disease Surveillance*, which was developed jointly by the Council of State and Territorial Epidemiologists, the Association of State and Territorial Chronic Disease Program Directors, and the Centers for Disease Control and Prevention (CDC) (2, 3). Measures #4-8 are also national evaluation objectives from the Division of Diabetes Translation at CDC. Measures #6 and 8 are Health Plan Employer Data and Information Set (HEDIS) measures developed by the National Committee for Quality Assurance.

Measures #1-8 are from the Behavioral Risk Factor Surveillance System (BRFSS). Measures #9-10 are from hospital discharge data. Measure #11 is from the US Renal Data System. Measures #12-13 are from death certificates.

Where appropriate, diabetes-related objectives from *Healthy People 2010* or *Healthy New Hampshire 2010* are given to put current data from New Hampshire in perspective (4, 5). *Healthy People 2010* is a set of national health targets for the next decade. *Healthy New Hampshire 2010* is a set of state-specific health targets.

Information on diabetes in this report does not differentiate between type I and type II disease for two reasons: 1) type II disease accounts for approximately 95% of all cases of diabetes; and 2) most of the data sets currently available for diabetes do not contain information on type of disease.

In some tables, both crude rates and age-adjusted rates are presented. The crude rate is calculated by dividing the number of events by the state's population and then multiplying by 100,000. Because the events of interest (hospitalizations, amputations, and deaths) are more common as a person ages, the crude rate can be affected by the age-structure of a population. To control for the effect of age, the age-adjusted rate was calculated using the 2000 United States standard population. The adjusted rate allows for more meaningful analysis when comparing data between states or when looking at trends in a single state over time.

In most cases, 95% confidence intervals (95% CI) are presented when data are obtained from surveys. Because surveys involve a sample of the population, each estimate has a margin of error. The confidence interval reflects the degree of uncertainty for each estimate. For example, 68.2% of persons with diabetes in New Hampshire reported having received an influenza immunization during the past year. The 95% confidence interval was 62.5%-73.8%. This can be interpreted to mean that our best estimate is that 68.2% of persons with diabetes in the state have been immunized for influenza in the past year, but that the true value could actually be as low as 62.5% or as high as 73.8%. In other words, the estimate from the survey has a margin of error of $\pm$5.6%.

DATA SOURCES

Behavioral Risk Factor Surveillance System

The Behavioral Risk Factor Surveillance System (BRFSS) is a population-based, random-digit dialed telephone survey of civilian, non-institutionalized adults, aged 18 years and older. The survey is coordinated by the Centers for Disease Control and Prevention (CDC) and is conducted annually by all states. In New Hampshire, the Health Statistics and Data Management Section in the Department of Health and Human Services is responsible for the survey. The BRFSS includes questions on health behavior risk factors such as safety belt use, diet, weight control, diabetes, alcohol use, physical exercise, and preventive health screenings. The data are weighted to more accurately reflect the population by accounting for age, gender, geographic location, and probability of selection. A core set of questions, which includes diabetes prevalence, is asked annually. Additional questions on diabetes are asked in an optional module. (BRFSS questions for which data are presented in this report are shown beginning on page 44.) In New Hampshire, 5,039 interviews were completed in 2002. Women reporting gestational diabetes were considered not to have diabetes when BRFSS data were analyzed for this report. Missing, don't know/not sure, and refused responses were excluded from analysis. The national estimates provided are not calculated by pooling all BRFSS data as a sample of the nation as a whole, but are simply a calculation of the middle value of all the state estimates (the median). This method gives equal weight to smaller states and bigger states and cannot be relied upon to approximate a national sample. New Hampshire and national data can be accessed on line at: http://www.cdc.gov/brfss/. Additional information on the New Hampshire BRFSS is available on-line at: http://www.dhhs.nh.gov/DHHS/BHSDM/ or by calling (603) 271-5926.

Healthy People 2010

Healthy People 2010 is a set of national health targets for the next decade. It builds on initiatives pursued over the past two decades including the 1979 Surgeon General's Report, *Healthy People*, and *Healthy People 2000: National Health Promotion and Disease Prevention Objectives.* It is designed to achieve two overarching goals: 1) increase quality and years of healthy life; and 2) eliminate health disparities. A copy of Healthy People 2010 can be obtained on-line at: http://www.health.gov/healthypeople/.

Healthy New Hampshire 2010

Healthy New Hampshire 2010 is New Hampshire's health promotion and disease prevention agenda for the first decade of the 21st century. Similar to *Healthy People 2010,* it is a compilation of health objectives. A copy of Healthy New Hampshire 2010 can be obtained on-line at: http://www.healthynh2010.org/ .

Hospital Discharge Data

Hospital discharge data is maintained by the New Hampshire Hospital Association under contract with the Department of Health and Human Services. The 23 acute-care, non-federal, inpatient facilities in the state report all admissions to this data set. The data set includes information on New Hampshire residents hospitalized in the state; New Hampshire residents hospitalized in another state are not included. The Health Statistics and Data Management Section oversees the analysis of this data set. Additional information about New Hampshire hospital discharge data is available on-line at: http://www.dhhs.nh.gov/DHHS/BHSDM/

United States Renal Data System

The United States Renal Data System is a national data system which collects, analyzes, and distributes information about end-stage renal disease in the United States. The system is funded by the National Institutes of Health and the Centers for Medicare and Medicaid Services. Additional information is available on-line at: www.usrds.org

Vital Statistics

New Hampshire law requires that reports of all birth, death, fetal death, marriage, and divorce be filed with the State Registrar in the Division of Vital Records Administration of the Department of State. The Health Statistics and Data Management Section in the Department of Health and Human Services analyzes these data. Depending on the event, filings are made by hospital personnel, physicians, funeral directors, city/town clerks, attorneys, and clerks of the courts. Reports of New Hampshire resident births and deaths in other states, and Canada, are provided to the State Registrar, for statistical purposes only, under an inter-state/Canadian agreement for the exchange of vital events information.

For death certificates, the cause of death reported is the underlying cause of death. In a death record, the underlying cause of death is the specific disease, condition, or injury that initiated the chain of events leading to death. The underlying cause of death is not always the same as the immediate cause of death. For example, if a person was hospitalized for diabetes, but developed pneumonia and died while in the hospital, the underlying cause of death would be diabetes. Additional information on deaths in New Hampshire is available at: http://www.dhhs.nh.gov/DHHS/BHSDM/

Diabetes Clinic Sites

The state's Diabetes Education Program provides grant funds to the Community Health Access Network (CHAN) to improve diabetes care at clinic sites throughout the state. The clinic sites are a mixture of community health centers and practices affiliated with local hospitals. Chart audits were conducted in 12 clinic sites to assess provision of clinical preventive services to adults with diabetes during calendar year 2002.

New Hampshire REACH 2010 Initiative

The New Hampshire Minority Health Coalition and its community partners obtained a grant from the Centers for Disease Control and Prevention as part of the Racial and Ethnic Approaches to Community Health (REACH 2010) program: www.cdc.gov/reach2010. One of the primary goals of the New Hampshire REACH 2010 Initiative is to describe the health status, health care acess, and health behaviors of African-descendent and Latino communities in Hillsborough County.

BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM

Figure 1. Prevalence of diabetes among adults by year – New Hampshire and United States, 1990-2002

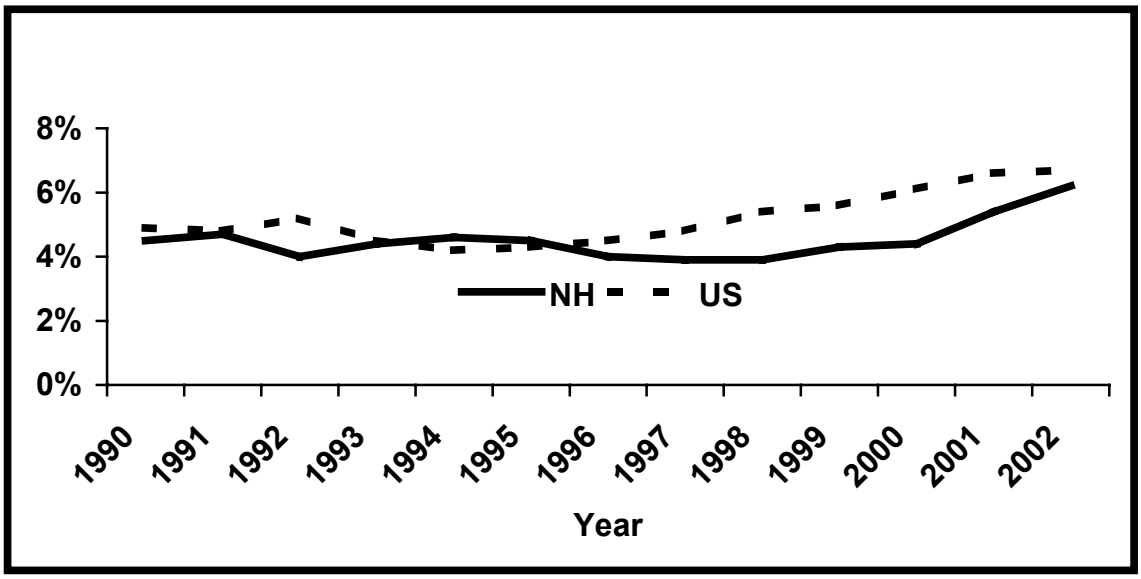


Table 1. Prevalence of diabetes among adults by year – NH and US, 1990-2002

	1990 (%)	1991 (%)	1992 (%)	1993 (%)	1994 (%)	1995 (%)	1996 (%)	1997 (%)	1998 (%)	1999 (%)	2000 (%)	2001 (%)	2002 (%)
NH	4.5	4.7	4.0	4.4	4.6	4.5	4.0	3.9	3.9	4.3	4.4	5.4	6.2
95% CI	3.3-5.7	3.5-5.9	3.0-5.0	3.4-5.4	3.4-5.8	3.3-5.7	3.0-5.0	2.9-4.9	2.7-5.1	3.1-5.4	3.4-5.3	4.6-6.1	5.4-6.9
US	4.5	4.8	5.2	4.5	4.2	4.3	4.5	4.8	5.4	5.6	6.1	6.6	6.7

Comment: The prevalence of diabetes among adults in New Hampshire in 2002 was 6.2% (95% Confidence Interval 5.4%-6.9%). This is most likely an underestimate since it only includes adults who have been diagnosed with the disease. It is estimated that up to one-third of persons with diabetes are unaware they have the disease.

Methods: The numerator included respondents who reported having been diagnosed with diabetes by a doctor except those with gestational diabetes. The denominator included all respondents except those with missing, don't know, or refused answers. National data are median values, while New Hampshire data are means. National data from 1990, 1991, and 1992 included 45, 48, and 49 states respectively. All remaining years included all 50 states. The District of Columbia and Puerto Rico were included beginning in 1996.

Healthy People 2010: The national *Healthy People 2010* objective (#5-3) is to reduce the overall rate of diabetes that is clinically diagnosed to 2.5%.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Table 2. Prevalence of diabetes by demographic group – New Hampshire, 2002

Demographic Group	Percent	95% Confidence Interval
Age Group (years)		
18-24	1.0	0.0-2.3
25-34	1.4	0.4-2.3
35-44	2.8	1.6-3.9
45-54	5.9	4.3-7.4
55-64	9.9	7.3-12.4
65+	17.6	14.8-20.3
Gender		
Male	6.7	5.5-7.8
Female	5.8	4.8-6.7
Income		
<$15,000	16.7	11.9-21.4
$15,000-24,999	10.6	7.6-13.5
$25,000-34,999	7.2	4.8-9.5
$35,000-49,999	4.8	3.0-6.5
$50,000+	3.3	2.5-4.0
Education (years)		
<12	11.7	7.9-15.4
12	7.4	6.0-8.7
13-15	6.7	5.1-8.2
16+	3.7	2.7-4.6
Total	6.2	5.4-6.9

Comment: The prevalence of diabetes increases with increasing age. There was no significant difference in diabetes prevalence between males and females. The prevalence of diabetes was higher in persons with lower incomes and less education.

Methods: For each demographic group, the numerator included respondents who reported having been diagnosed with diabetes by a doctor. Women reporting gestational diabetes were considered not to have diabetes for the purpose of this analysis. Each denominator included all respondents in that demographic group except those with missing, don't know, or refused answers.

Healthy People 2010: The national *Healthy People 2010* objective (#5-3) is to reduce the overall rate of diabetes that is clinically diagnosed to 2.5%.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 2. Prevalence of overweight among adults by year – New Hampshire and United States, 1990-2002

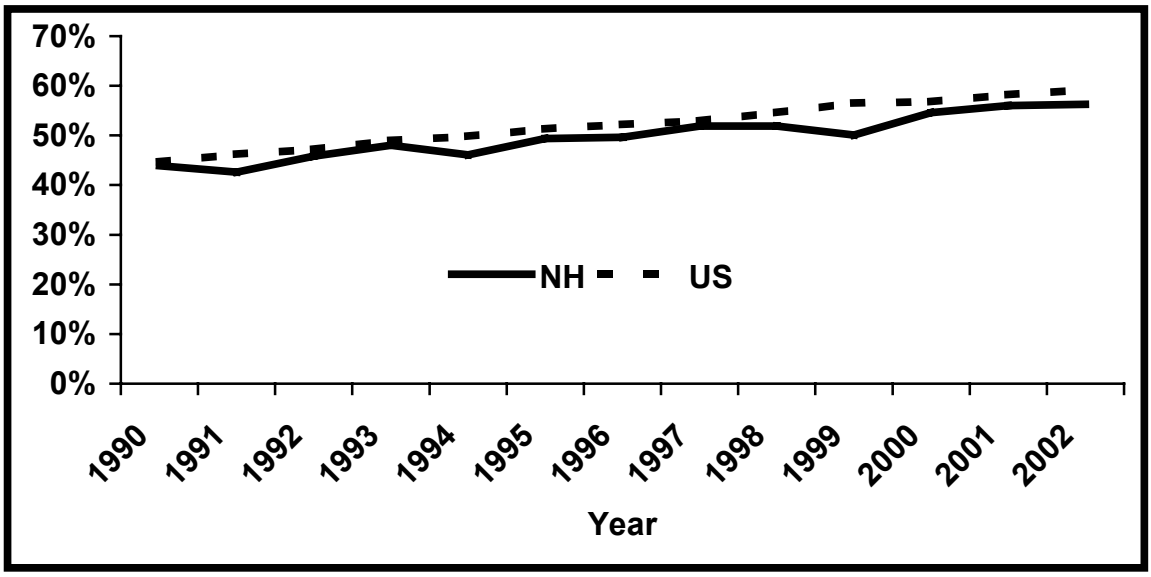


Table 3. Prevalence of overweight among adults by year – New Hampshire and United States, 1990-2002

	1990 (%)	1991 (%)	1992 (%)	1993 (%)	1994 (%)	1995 (%)	1996 (%)	1997 (%)	1998 (%)	1999 (%)	2000 (%)	2001 (%)	2002 (%)
NH	43.9	42.5	45.8	48.0	46.1	49.3	49.6	52.0	51.9	50.1	54.6	56.0	56.3
95% CI	41.1 – 46.7	39.7 – 45.4	42.9 – 48.7	45.1 – 50.8	43.3 – 48.9	46.4 – 52.3	46.5 – 52.6	49.0 – 54.9	49.0 – 54.8	46.8 – 53.4	51.9 – 57.3	54.2 – 57.7	54.7 – 57.9
US	44.7	46.2	47.2	49.0	49.8	51.3	52.2	52.9	54.6	56.5	56.8	58.2	59.2

Comment: Being overweight is a risk factor for diabetes. The prevalence of overweight among New Hampshire adults increased from 43.9% in 1990 to 56.3% in 2002.

Methods: Overweight is defined as a Body Mass Index (BMI) $\geq$25.0. This definition includes both persons who are overweight (25.0$\leq$ BMI <30.0) and persons who are obese (BMI $\geq$30.0). BMI is calculated by dividing a person's weight in kilograms by their height in meters squared.

Healthy People 2010: The *Healthy People 2010* objective (#19-2) is to reduce the proportion of adults who are obese (BMI$\geq$30) to 15% or less. In 2002, 17.9% of adults in New Hampshire were obese.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to reduce the prevalence of overweight (BMI$\geq$25.0) to 40%.

Data Source: Behavioral Risk Factor Surveillance System (6).

Table 4. Prevalence of overweight among adults by demographic group – New Hampshire, 2002

Demographic Group	Percent	95% Confidence Interval
Age Group (years)		
18-24	37.1	30.7-43.5
25-34	49.6	45.5-53.7
35-44	58.5	55.4-61.6
45-54	62.5	59.2-65.8
55-64	64.8	61.0-68.7
65+	59.8	56.1-63.4
Gender		
Male	67.3	65.0-69.6
Female	45.4	43.3-47.5
Income		
<$15,000	59.6	53.0-66.3
$15,000-24,999	57.0	52.1-61.8
$25,000-34,999	57.4	52.7-62.0
$35,000-49,999	55.9	52.0-59.9
$50,000+	57.3	54.8-59.8
Education (years)		
<12	57.4	51.0-63.8
12	60.7	57.7-63.7
13-15	56.0	52.8-59.2
16+	52.7	50.1-55.3
Total	56.3	54.7-57.9

Comment: Being overweight is a risk factor for diabetes. The prevalence of overweight among New Hampshire adults was higher in persons older than 35 years of age and males. There were no significant differences in overweight by income. Persons with a college degree were less likely to be overweight than those with a high school diploma.

Methods: Overweight is defined as a Body Mass Index (BMI) $\geq$25.0. This definition includes both persons who are overweight (25.0$\leq$ BMI <30.0) and persons who are obese (BMI $\geq$30.0). BMI is calculated by dividing a person's weight in kilograms by their height in meters squared.

Healthy People 2010: The *Healthy People 2010* objective (#19-2) is to reduce the proportion of adults who are obese (BMI$\geq$30) to 15% or less. In 2002, 17.9% of adults in New Hampshire were obese.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to reduce the prevalence of overweight (BMI$\geq$25) to 40%.

Data Source: Behavioral Risk Factor Surveillance System (6).

Table 5. Adults with no leisure-time physical activity by demographic group – New Hampshire, 2002

Demographic Group	Percent	95% Confidence Interval
Age Group (years)		
18-24	16.9	12.0-21.8
25-34	14.9	12.1-17.6
35-44	17.3	14.9-19.6
45-54	17.5	14.9-20.0
55-64	23.0	19.4-26.5
65+	31.3	27.7-34.8
Gender		
Male	18.2	16.4-19.9
Female	21.5	19.7-23.2
Income		
<$15,000	42.6	36.3-48.8
$15,000-24,999	31.3	26.9-35.6
$25,000-34,999	23.7	19.5-27.8
$35,000-49,999	21.8	18.2-25.3
$50,000+	10.3	8.7-11.8
Education (years)		
<12	43.2	36.9-49.4
12	28.4	25.8-30.9
13-15	16.7	14.3-19.0
16+	9.8	8.4-11.1
Total	19.9	18.7-21.0

Comment: Lack of physical activity is a risk factor for diabetes. Physical inactivity was more common among the elderly and those with lower incomes and less education.

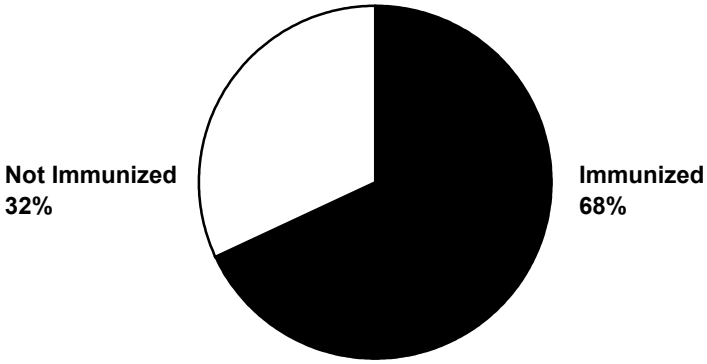
Methods: Lack of leisure-time physical activity was defined as no leisure time physical activity during the past month.

Healthy People 2010: The national *Healthy People 2010* objective (#22-1) is to decrease the percentage of adults with no leisure-time physical activity to 20%.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to increase to 50% the proportion of persons who engage in physical activity for thirty minutes or more five or more times a week.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 3. Influenza Immunization Among Persons with Diabetes – New Hampshire, 2002



Comment: It is recommended that all persons with diabetes receive an annual influenza immunization. Data from 2002 indicated that 68.2% (95% Confidence Interval 62.5%-73.8%) of adults with diabetes in New Hampshire had been immunized against influenza during the previous year. Nationwide, 53.5% of adults with diabetes reported having received an influenza vaccination in the past year in 2001 (7).

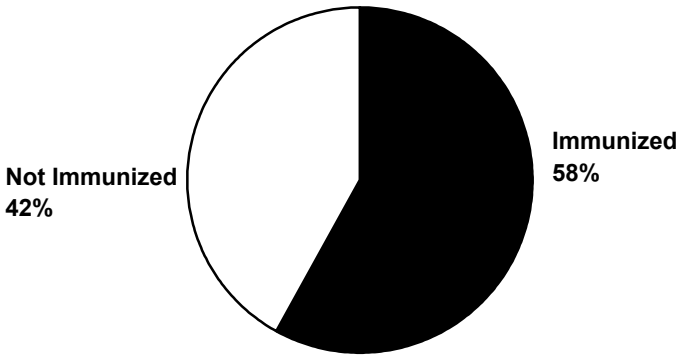
Methods: The numerator included all persons ≥18 years of age who reported being diagnosed with diabetes and who had received an influenza immunization during the past year. The denominator included all persons ≥18 years of age who reported having been diagnosed with diabetes (n=346).

Healthy People 2010: The national *Healthy People 2010* objective (#14-29) is to immunize 90% of persons with diabetes who are institutionalized or ≥65 years of age and 60% of persons with diabetes who are 18-64 years of age.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to immunize 80% of independently living adults age 50 or over. The objective is not specific to persons with diabetes.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 4. Pneumococcal Immunization Among Persons with Diabetes – New Hampshire, 2002



Comment: It is recommended that all persons with diabetes receive a pneumococcal immunization at least once. Data from 2002 indicated that 58.3% (95% Confidence Interval 52.3%-64.2%) of adults with diabetes in New Hampshire had been immunized against pneumococcal disease. Nationwide, 45.7% of adults with diabetes reported ever receiving a pneumococcal immunization in 2001 (7).

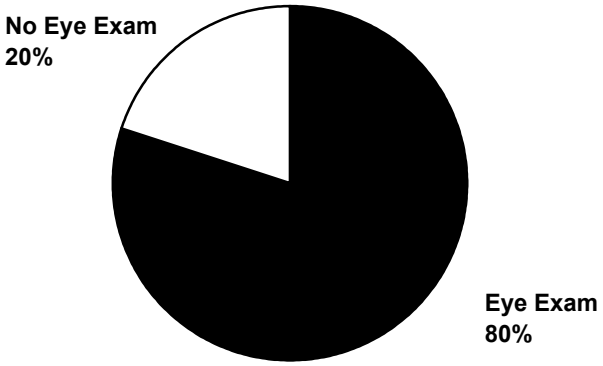
Methods: The numerator included all persons ≥18 years of age who reported being diagnosed with diabetes and who had ever received a pneumococcal immunization. The denominator included all persons ≥18 years of age who reported having been diagnosed with diabetes (n=346).

Healthy People 2010: The national *Healthy People 2010* objective (#14-29) is to immunize 90% of persons with diabetes who are institutionalized or ≥65 years of age and 60% of persons with diabetes who are 18-64 years of age.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to immunize 90% of independently living adults age 65 or over. The objective is not specific to persons with diabetes.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 5. Dilated Eye Examinations Among Persons with Diabetes – New Hampshire, 2002



Comment: It is recommended that all persons with diabetes receive an annual dilated eye examination. Data from 2002 indicated that 79.6% (95% Confidence Interval 74.7%-84.5%) of adults with diabetes in New Hampshire had a dilated eye examination during the previous 12 months. Nationwide, 69.7% of adults with diabetes reported receiving a dilated eye examination in the past year in 2002 (7).

Based on 2002 data, 26.8% (95% confidence interval 21.2%-32.3%) of adults with diabetes in New Hampshire have been told by a doctor that they have retinopathy.

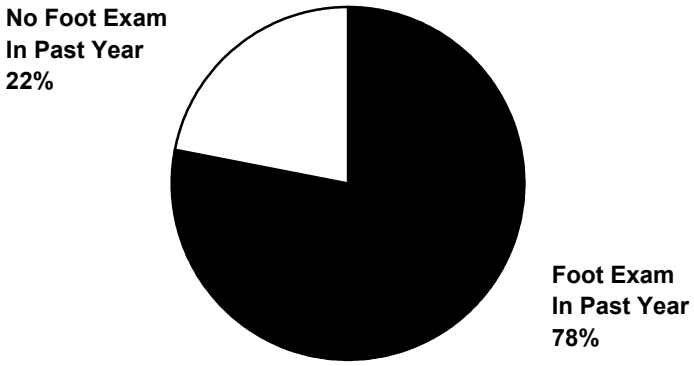
Methods: The numerator included all persons ≥18 years of age who reported being diagnosed with diabetes and who had received a dilated eye examination during the past year. The denominator included all persons ≥18 years of age who reported having been diagnosed with diabetes (n=346).

Healthy People 2010: The national *Healthy People 2010* objective (#5-13) is to increase to 75% the proportion of adults with diabetes who have an annual dilated eye examination.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to increase to 80% the percentage of adults with diabetes who report having a dilated eye exam in the last 12 months.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 6. Foot Examinations Among Persons with Diabetes – New Hampshire, 2002



Comment: Annual Foot Examination -- In 2002, 78.3% of adults (95% Confidence Interval 73.1%-83.6%) with diabetes in New Hampshire reported receiving at least one foot examination by a health professional in the past year. Nationwide, 68.2% of adults with diabetes reported receiving a foot examination during the past year in 2002 (7).

Quarterly Foot Examination -- It is recommended that all persons with diabetes have their feet examined at least four times annually by a health professional. In 2002, 35.5% (95% Confidence Interval 29.7%-41.4%) of adults with diabetes in New Hampshire reported at least four foot examinations by a health professional during the previous year.

In 2002, 58.5% (95% Confidence Interval 52.3%-64.6%) of adults with diabetes in New Hampshire reported checking their feet daily for sores or irritations. Nationwide, 68.8% of adults with diabetes reported a daily foot self-exam (7). Twelve percent of adults with diabetes in New Hampshire (95% Confidence Interval 7.9%-15.5%) reported ever having had sores or irritations on their feet that took more than four weeks to heal.

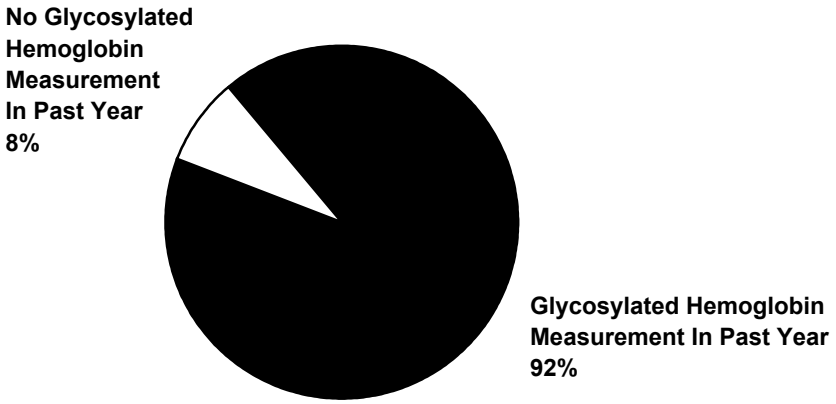
Methods: The numerator for annual foot examinations included all persons $\geq$18 years of age who reported being diagnosed with diabetes and who had received a foot examination during the past year. The numerator for quarterly foot examinations included all persons $\geq$18 years of age who reported being diagnosed with diabetes and who had received at least four foot examinations during the past year. The denominator for both measures included all persons $\geq$18 years of age who reported having been diagnosed with diabetes (n=346).

Healthy People 2010: The national *Healthy People 2010* objective (#5-14) is to increase the proportion of adults with diabetes who have at least an annual foot examination to 75%.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 7. Glycosylated Hemoglobin* Measurement Among Persons with Diabetes – New Hampshire, 2002 *(Also referred to as 'Hemoglobin A1c' or HbA1c)



Comment: Annual glycosylated hemoglobin measurement -- In 2002, 91.9% (95% Confidence Interval 88.4%-95.4%) of adults with diabetes in New Hampshire reported having a glycosylated hemoglobin measurement during the past year.

Quarterly glycosylated hemoglobin measurement -- It is recommended that persons with diabetes have a glycosylated hemoglobin measurement four times annually. In 2002, 37.1% (95% Confidence Interval 31.0%-43.1%) of adults with diabetes in New Hampshire reported four or more glycosylated hemoglobin measurements during the past year.

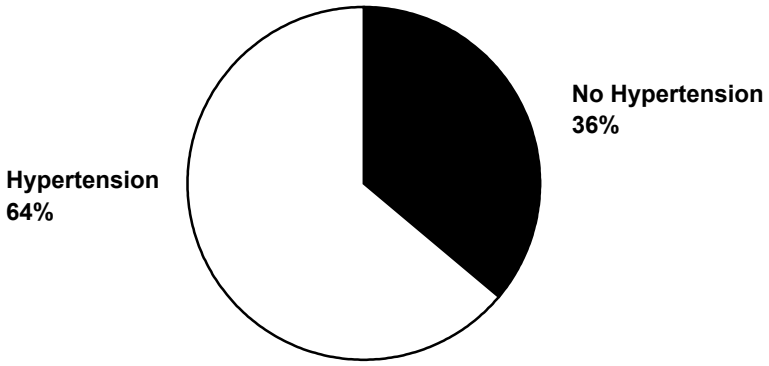
Methods: The numerator for annual glycosylated hemoglobin measurement included all persons ≥18 years of age who reported being diagnosed with diabetes and who had at least one glycosylated hemoglobin measurement during the past year. The numerator for quarterly glycosylated hemoglobin measurement included all persons ≥18 years of age who reported being diagnosed with diabetes and who had at least four glycosylated hemoglobin measurements during the past year. The denominator for both measures included all persons ≥18 years of age who reported having been diagnosed with diabetes (n=346).

Healthy People 2010: The national *Healthy People 2010* objective (#5-12) is to increase to 50% the proportion of adults with diabetes who have a glycosylated hemoglobin measurement at least once a year.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to increase to 50% the percentage of adults with diabetes who report having had a glycosylated hemoglobin measurement in the last 12 months.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 8. Hypertension Among Persons with Diabetes – New Hampshire, 2001



Comment: In 2001, 63.6% (95% Confidence Interval 57.0%-70.2%) of adults with diabetes in New Hampshire reported having hypertension compared to 20.5% (95% Confidence Interval 19.0%-22.0%) of adults without diabetes. Nationwide, 63.3% of adults with diabetes reported having hypertension in 2001 (7).

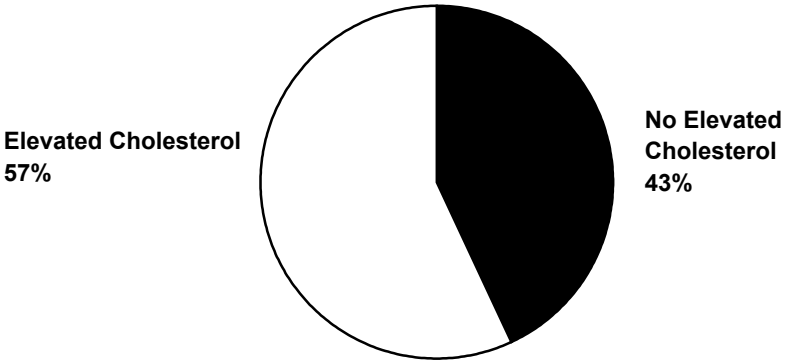
Methods: The numerator included all persons ≥18 years of age who reported being diagnosed with diabetes and hypertension. The denominator included all persons ≥18 years of age who reported having been diagnosed with diabetes (n=241).

Healthy People 2010: Reduce the proportion of adults with high blood pressure to 16% (#12.9). The objective is not specific to persons with diabetes.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 9. Elevated Cholesterol Among Persons with Diabetes – New Hampshire, 2001



Comment: In 2001, 56.7% (95% Confidence Interval 49.7%-63.6%) of adults with diabetes in New Hampshire reported having elevated cholesterol compared with 29.2% (95% Confidence Interval 27.4%-31.0%) of adults without diabetes. Nationwide, 53.3% of adults with diabetes reported having elevated cholesterol in 2001 (7).

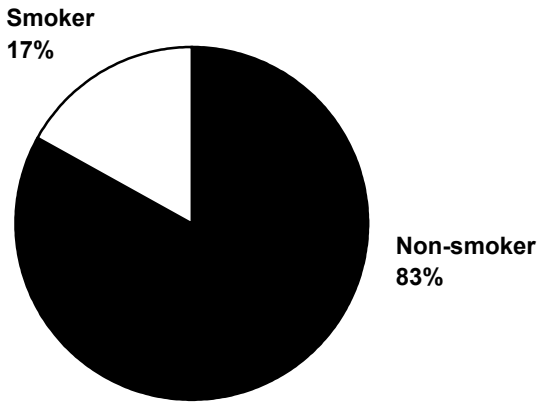
Methods: The numerator included all persons ≥18 years of age who reported being diagnosed with diabetes and elevated cholesterol. The denominator included all persons ≥18 years of age who reported having been diagnosed with diabetes (n=241).

Healthy People 2010: Reduce the proportion of adults with high total blood cholesterol levels to 17% (#12-14). The objective is not specific to persons with diabetes.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 10. Smoking Among Persons with Diabetes – New Hampshire, 2002



Comment: In 2002, 16.7% (95% Confidence Interval 12.1%-21.4%) of adults with diabetes in New Hampshire smoked compared to 23.6% (95% Confidence Interval 22.2%-25.0%) of adults without diabetes. Nationwide, 17.4% of adults with diabetes reported smoking in 2002 (7).

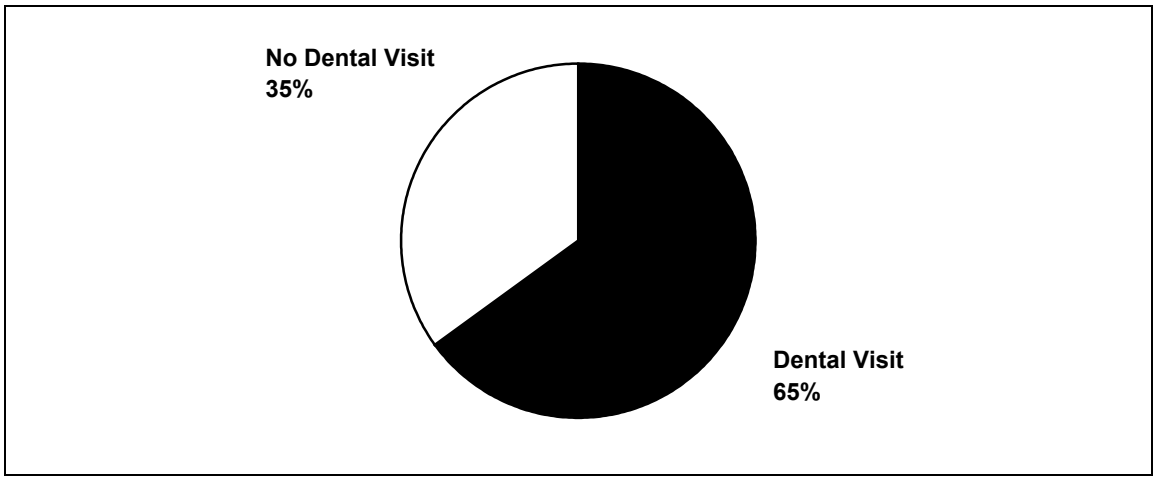
Methods: The numerator included all persons ≥18 years of age who reported being diagnosed with diabetes and who were current smokers. The denominator included all persons ≥18 years of age who reported having been diagnosed with diabetes (n=346).

Healthy People 2010: The *Healthy People 2010* objective (#27-1) is to decrease smoking among adults to 12%. The objective is not specific to persons with diabetes.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 11. Dental Visit by Persons with Diabetes – New Hampshire, 2002



Comment: It is recommended that all persons with diabetes receive at least an annual dental examination. Data from 2002 indicated that 65.1% (95% Confidence Interval 59.2%-70.9%) of adults with diabetes in New Hampshire had visited a dentist or dental clinic during the previous 12 months. Among New Hampshire adults without diabetes, 78.8% (95% Confidence Interval 77.4%-80.1%) reported having visited a dentist during the past year.

Methods: The numerator included all persons ≥18 years of age who reported being diagnosed with diabetes and who had visited a dentist or dental clinic during the past year. The denominator included all persons ≥18 years of age who reported having been diagnosed with diabetes (n=346).

Healthy People 2010: The *Healthy People 2010* objective (#5-15) is to increase to 75% the proportion of persons with diabetes who have an annual dental examination.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Table 6. Use of Medications by Persons with Diabetes – New Hampshire, 2002

	%	95% Confidence Interval
Oral diabetes medications with or without insulin	62.0	56.1-68.0
Insulin with or without oral diabetes medications	27.9	22.4-33.3
Oral diabetes medications only	52.9	46.9-59.0
Insulin only	18.8	14.0-23.6
Both oral diabetes medication and insulin	9.1	5.7-12.5
Neither oral diabetes medication or insulin	19.2	14.3-24.0

Comment: Data from 2002 indicated that the majority of persons with diabetes in New Hampshire used oral diabetes medications for treatment. Approximately one-quarter of adults with diabetes reported that they currently use insulin. The number of persons with diabetes who reported no treatment is of concern. Nationwide in 2000, 53.0% of adults with diabetes used oral medications only, 19.4% used insulin only, and 12.1% used oral medications and insulin (7).

Methods: The numerator included all persons ≥18 years of age who reported being diagnosed with diabetes and who reported whether or not they took insulin and/or oral diabetes medications. The denominator included all persons ≥18 years of age who reported having been diagnosed with diabetes (n=346).

Healthy People 2010: No objective.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Table 7. Management of Diabetes – New Hampshire, 2002

	%	95% Confidence Interval
Ever taken course or class in how to manage diabetes	55.0	48.9-61.1
Checked blood for glucose daily	56.8	50.8-62.8
Saw a doctor, nurse, or other health professional for diabetes at least once in past year	93.5	90.5-96.6
Saw a doctor, nurse, or other health professional for diabetes at least four times in past year	54.3	48.2-60.4

Comment: In order to adequately control their disease, adults with diabetes should have taken a course in self-management. They should also check their blood glucose at least daily and be seen regularly by their health care provider (e.g., at least quarterly). Nationwide, 53.6% of adults with diabetes had ever attended a diabetes self-management class, 56.6% self-monitored glucose daily, and 90.9% had seen a doctor for diabetes in the past year (7).

Methods: The denominator included all persons ≥18 years of age who reported having been diagnosed with diabetes (n=346).

Healthy People 2010: No objective.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 12. General Health Status of Adults with and without Diabetes – New Hampshire, 2002

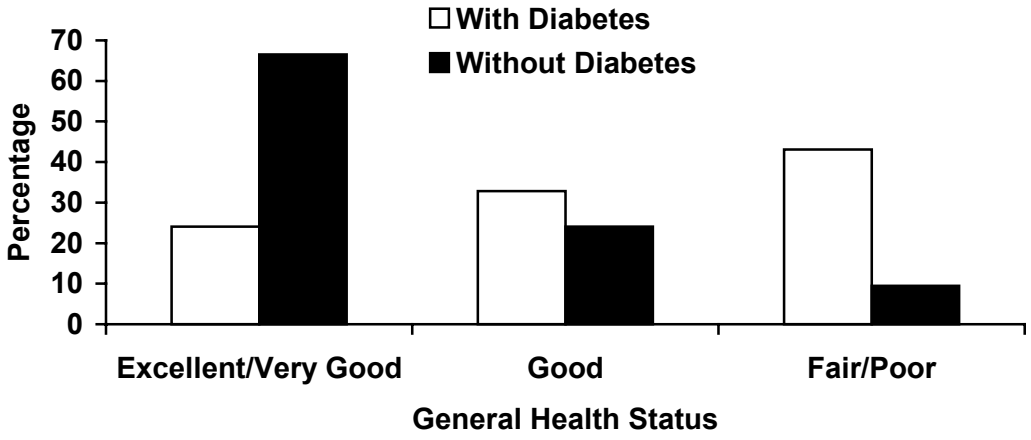


Table 8. General Health Status of Adults with and without Diabetes – New Hampshire, 2002

	Excellent/Very Good % (95% CI)	Good % (95% CI)	Fair/Poor % (95% CI)
Diabetes	24.1 (19.0-29.1)	32.8 (27.1-38.5)	43.1 (37.1-49.1)
No Diabetes	66.5 (64.9-68.0)	24.1 (22.7-25.5)	9.5 (8.5-10.4)

Comment: Adults with diabetes were significantly less likely to report excellent or very good health compared to adults without diabetes and significantly more likely to report fair or poor health.

Methods: The denominator for the general health status of adults with diabetes included all persons ≥18 years of age who reported having been diagnosed with diabetes (n=346). The denominator for the general health status of adults without diabetes included all persons ≥18 years of age who reported not having been diagnosed with diabetes or who reported being diagnosed with gestational diabetes (n=4670).

Healthy People 2010: No objective.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

HOSPITAL DISCHARGE DATA

Table 9. Diabetes-related Hospitalizations – New Hampshire, 1996-2001

Year	Hospitalizations	Crude Rate (per 100,000 population)	Age-Adjusted Rate (per 100,000 population using 2000 standard US population)
1996	11,540	994.2	1063.9
1997	12,204	1040.2	1108.2
1998	12,408	1047.1	1109.7
1999	12,770	1063.2	1116.4
2000	14,614	1182.6	1206.8
2001	15,163	1208.7	1227.6

Comment: The number of diabetes-related hospitalizations has increased 31% in New Hampshire from 1996 through 2001. The age-adjusted rate for diabetes-related hospitalizations in the United States ranged from 1466 to 1624 per 100,000 from 1996 through 2001 (7).

Methods: Both primary and contributing diagnoses were used to determine diabetes-related hospitalizations (resident hospital discharges with ICD-9-CM 250.00-250.93).

Healthy People 2010: No objective.

Healthy New Hampshire 2010: No objective.

Data Source: Inpatient Hospital Discharge Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Laboratory Sciences, Division of Public Health Services, New Hampshire Department of Health and Human Services.

Table 10. Diabetes-Related Hospitalizations by Age Group – New Hampshire, 2001

Age Group (years)	Hospitalizations	Age-Specific Rate (per 100,000 population)
0-4	12	---
5-14	77	41.8
15-24	148	93.3
25-34	355	222.4
35-44	794	359.5
45-54	1,680	882.8
55-64	2,694	2336.5
65-74	4,213	5367.4
75-84	3,920	7550.4
≥85	1,270	6638.3
Total	15,163	1208.7 (Crude Rate) 1227.6 (Age-Adjusted Rate)

Table 11. Diabetes-Related Hospitalizations by Sex – New Hampshire, 2001

Sex	Hospitalizations	Crude Rate (per 100,000 population)	Age-Adjusted Rate (per 100,000 population using 2000 standard US population)
Male	7,461	1210.1	1373.0
Female	7,702	1207.4	1126.1
Total	15,163	1208.7	1227.6

Comment: The rate of diabetes-related hospitalizations increased steadily with age. The slight decline in the hospitalization rate for the oldest age group (85+) may be due to survivor bias. In other words, many individuals with diabetes will have died prior to reaching this age. Diabetes-related hospitalizations were more common among males than females.

Methods: Both primary and contributing diagnoses were used to determine diabetes-related hospitalizations (resident hospital discharges with ICD-9-CM 250.00-250.93). Rates were not calculated in Table 10 if the number of events per age group was less than 20.

Healthy People 2010: No objective.

Healthy New Hampshire 2010: No objective.

Data Source: Inpatient Hospital Discharge Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Laboratory Sciences, Division of Public Health Services, New Hampshire Department of Health and Human Services.

Table 12. Diabetes-Related Hospitalizations by Payor – New Hampshire, 2001

Payor	Hospitalizations	Percent
Medicare	10,223	67.4
Commercial insurance	3,629	23.9
Medicaid	606	4.0
Self-pay	465	3.1
Other	240	1.6
Total	15,163	100.0

Comment: Medicare paid for approximately two-thirds of diabetes-related hospitalizations in New Hampshire in 2001. Altogether, government insurance paid for 72.7% of all diabetes-related hospitalizations in New Hampshire in 2001.

Methods: Both primary and contributing diagnoses were used to determine diabetes-related hospitalizations (resident hospital discharges with ICD-9-CM 250.00-250.93).

Healthy People 2010: No objective.

Healthy New Hampshire 2010: No objective.

Data Source: Inpatient Hospital Discharge Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Laboratory Sciences, Division of Public Health Services, New Hampshire Department of Health and Human Services.

Table 13. Diabetes-Related Lower Extremity Amputations – New Hampshire, 1992-2001

Year	Amputations	Crude Rate (per 100,000 population)	Age-Adjusted Rate (per 100,000 population using 2000 standard US population)
1992	203	18.2	20.4
1993	194	17.3	19.2
1994	225	19.9	21.8
1995	203	17.7	19.3
1996	231	19.9	21.6
1997	275	23.4	25.1
1998	291	24.6	26.2
1999	246	20.5	21.5
2000	272	22.0	22.2
2001	243	19.4	19.3

Comment: The age-adjusted rate of diabetes-related lower extremity amputations has varied from 19.2 per 100,000 to 26.2 per 100,000 over the past 10 years in New Hampshire; there does not appear to be any consistent trend. The age-adjusted rate for the United States varied from 21 to 31 per 100,000 during the same time period (7).

Methods: Both primary and contributing diagnoses were used to determine diabetes-related amputations (resident hospital discharges with ICD-9-CM 250.00-250.93 and a procedure of ICD-9-CM 84.1, and not having a ICD-9-CM code of 895-897 [traumatic amputation]).

Healthy People 2010: Reduce the rate of lower extremity amputations in persons with diabetes to 1.8 amputations per 1,000 persons with diabetes per year.

Healthy New Hampshire 2010: No objective.

Data Source: Inpatient Hospital Discharge Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Laboratory Sciences, Division of Public Health Services, New Hampshire Department of Health and Human.

Table 14. Diabetes-Related Lower Extremity Amputations by Age Group – New Hampshire, 2001

Age Group (years)	Amputations	Age-Specific Rate (per 100,000 population)
0-34	0	---
35-44	5	---
45-54	58	30.5
55-64	53	46.0
65-74	74	94.3
75-84	47	90.5
≥85	6	---
Total	243	19.4 (Crude Rate) 19.3 (Age-Adjusted Rate)

Table 15. Diabetes-Related Lower Extremity Amputations by Sex – New Hampshire, 2001

Sex	Amputations	Crude Rate (per 100,000 population)	Age-Adjusted Rate (per 100,000 population using 2000 standard US population)
Male	182	29.5	31.7
Female	61	9.6	9.2
Total	243	19.4	19.3

Table 16. Diabetes-Related Lower Extremity Amputations by Payor – New Hampshire, 2001

Payor	Amputations	Percent
Medicare	149	61.3
Commercial insurance	62	25.5
Medicaid	13	5.3
Self-pay	9	3.7
Other	10	4.1
Total	243	100.0

Comment: Amputations of the lower extremity are more common as people age and among males. Medicare paid for approximately three-fifths of diabetes-related lower extremity amputations. Altogether, government insurance paid for 70.4% of diabetes-related lower extremity amputations in New Hampshire in 2001.

Methods: Both primary and contributing diagnoses were used to determine diabetes-related amputations (resident hospital discharges with ICD-9-CM 250.00-250.93 and a procedure of ICD-9-CM 84.1, and not having a ICD-9-CM code of 895-897 [traumatic

amputation]). Rates were not calculated in Table 14 if the number of events per age group was less than 20.

Healthy People 2010: Reduce the rate of lower extremity amputations in persons with diabetes to 1.8 amputations per 1,000 persons with diabetes per year.

Healthy New Hampshire 2010: No objective.

Data Source: Inpatient Hospital Discharge Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Laboratory Sciences, Division of Public Health Services, New Hampshire Department of Health and Human Services.

U.S. RENAL DATA SYSTEM

Figure 13. Incident cases of end stage renal disease attributed to diabetes by year – New Hampshire, 1990-2001

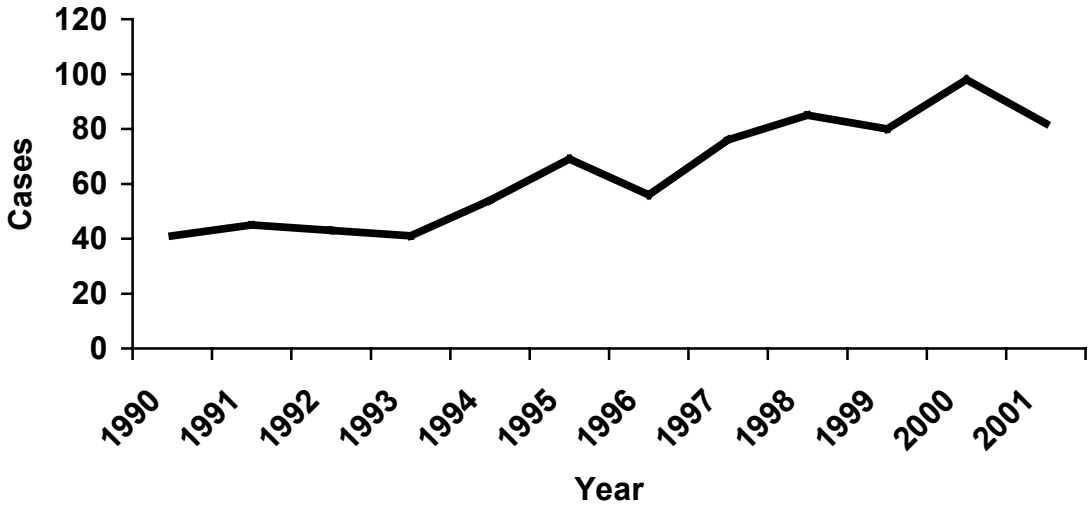


Table 17. Incident cases and rates of end stage renal disease attributed to diabetes by year – New Hampshire and United States, 1990-2001

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
NH cases	41	45	43	41	54	69	56	76	85	80	98	82
NH rate	60	41	55	72	66	101	59	62	133	60	90	104
US rate	69	79	86	84	99	111	124	131	138	143	147	148

Comment: The number of persons in New Hampshire reported with end stage renal disease attributed to diabetes increased from 41 in 1990 to 82 in 2001; an increase of 100%. During the same time period, the number of cases in the U.S. increased 156%.

Methods: The US Renal Data System is funded by the National Institutes of Health and the Centers for Medicare and Medicaid Services to monitor the incidence of end stage renal disease using a variety of data sources. Rates are adjusted by age, sex, and race.

Healthy People 2010: Reduce kidney failure due to diabetes (#4.7) to 78 new cases of end stage renal disease in persons with diabetes per 1,000,000 persons per year.

Healthy New Hampshire 2010: No objective.

Data Source: United States Renal Data System.

Table 18. Diabetes-Related Mortality by Year – New Hampshire, 1990-2001

Year	Deaths	Crude Death Rate (per 100,000 population)	Age-Adjusted Death Rate (per 100,000 population using 2000 standard US population)
1990	697	62.7	72.8
1991	712	64.3	73.6
1992	767	68.9	77.3
1993	745	66.4	73.8
1994	771	68.0	75.1
1995	796	69.5	75.7
1996	851	73.3	79.4
1997	893	76.1	81.8
1998	892	75.3	80.2
1999	977	81.3	86.0
2000	967	78.2	81.7
2001	963	76.8	79.4

Comment: The increase in the crude diabetes death rate in New Hampshire may be due to an increasing prevalence of diabetes and an aging population.

Methods: Both underlying and contributing causes of death were used to determine diabetes-related mortality (ICD-9 code of 250.0-250.9; ICD-10 code of E10.0-E14.9).

Healthy People 2010: The national *Healthy People 2010* objective (#5-5) is to decrease age-adjusted diabetes-related mortality to 45 deaths per 100,000 persons.

Healthy New Hampshire 2010: No objective.

Data Source: Morality Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Laboratory Sciences, Division of Public Health Services, New Hampshire Department of Health and Human Services.

Table 19. Diabetes-Related Mortality by Age Group – New Hampshire, 2001

Age Group (years)	Deaths	Age-Specific Death Rate (per 100,000 population)
0-24	0	---
25-34	3	---
35-44	21	9.5
45-54	51	26.8
55-64	108	93.7
65-74	231	294.3
75-84	344	662.6
≥85	205	1071.5
Total	963	76.8 (Crude Rate) 79.4 (Age-Adjusted Rate)

Table 20. Diabetes-Related Mortality by Sex – New Hampshire, 2001

Sex	Deaths	Crude Rate (per 100,000 population)	Age-Adjusted Death Rate (per 100,000 population using 2000 standard US population)
Male	493	80.0	100.7
Female	470	73.7	65.0
Total	963	76.8	79.4

Comment: The diabetes-related death rate increases with increasing age. The diabetes-related death rate was significantly higher for males than females.

Methods: Both underlying and contributing causes of death were used to determine diabetes-related mortality (ICD-9 code of 250.0-250.9; ICD-10 code of E10.0-E14.9). Rates were not calculated in Table 19 if the number of events per age group was less than 20.

Healthy People 2010: The national *Healthy People 2010* objective (#5-5) is to decrease age-adjusted diabetes-related mortality to 45 deaths per 100,000 persons.

Healthy New Hampshire 2010: No objective.

Data Source: Mortality Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Laboratory Sciences, Division of Public Health Services, New Hampshire Department of Health and Human Services.

Table 21. Diabetes Ketoacidosis-Related Mortality – New Hampshire, 1990-2001

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Deaths	11	8	13	5	9	9	9	6	8	1	7	9

Comment: The number of deaths from diabetic ketoacidosis in New Hampshire is too small for meaningful analysis.

Methods: Both underlying and contributing causes of death were used to determine diabetic ketoacidosis-related mortality (ICD-9 code 250.1; ICD-10 code E10.1, E11.1, E12.1, E13.1, or E14.1).

Healthy People 2010: No objective.

Healthy New Hampshire 2010: No objective.

Data Source: Mortality Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Laboratory Sciences, Division of Public Health Services, New Hampshire Department of Health and Human Services.

DIABETES CLINIC SITES

Table 22. Receipt of Clinical Prevention Practices for Adults with Diabetes at Participating Clinic Sites – New Hampshire, 2002

Clinical Prevention Practice	%
Influenza vaccine in past year	38
History of pneumococcal vaccine	44
Dilated eye exam in past year	24
Foot exam in past 3 months	22
Foot exam in past year	45
Glycosylated hemoglobin test in past 3 months	42
Glycosylated hemoglobin test in past year	78
Most recent glycosylated hemoglobin test <7.0	56
Aspirin therapy	46
Microalbumin in past year	41
LDL cholesterol in past year	57
Diabetes education in past year	21
Current tobacco use	8
Tobacco cessation recommend in past year among current tobacco users	73

Comment: Data from the twelve clinic sites should be compared to statewide results from the Behavioral Risk Factor Surveillance System (BRFSS) with caution. Information from the clinic sites was based on medical records whereas the BRFSS data were obtained from a telephone survey of adult respondents. As an example, dilated eye examinations may be poorly documented in a patient's primary care medical chart, but readily acknowledged by self-report through a telephone interview. Patients seen in community health centers may also be of lower socio-economic status than the general population and therefore less likely to receive the indicated preventive services due to financial and other constraints.

Methods: Twelve clinic sites participated in the diabetes chart audits for calendar year 2002: Ammonoosuc Community Health Services (Littleton), Avis Goodwin Community Health Center (Dover and Rochester), Coos County Family Health Services (Berlin), Families First Health and Support Center (Portsmouth), Health First Family Care Center (Franklin), Lamprey Health Care (Newmarket and Raymond), Manchester Community Health Center (Manchester), Nashua Area Health Center, Partners in Health (Newport), and Weeks Medical Center (Lancaster). These twelve sites had a total of 2467 adults with diabetes. Records were abstracted for 1603 patients. All charts were reviewed at Ammonoosuc, Avis Goodwin, Families First, Health First, and Lamprey Health Care. A sample of approximately 30 charts each was reviewed at Coos County Family Health, Manchester Community Health Center, Nashua Area Health Center, Partners in Health, and Weeks Medical Center.

Healthy People 2010: Multiple objectives. Please see pages 9-21.

Healthy New Hampshire 2010: Immunize 80% of independently living adults age 50 or over against influenza. Immunize 90% of independently living adults age 65 or over against pneumococcal disease. Increase to 80% the percentage of adults with diabetes who report having a dilated eye exam in the last 12 months. Increase to 50% the percentage of adults with diabetes who report having had a glycosylated hemoglobin measurement in the last 12 months.

Data Source: Community Health Access Network and New Hampshire Diabetes Education Program.

NEW HAMPSHIRE REACH 2010 INITIATIVE

National data indicate that there are marked disparities in the prevalence of diabetes among different population groups. African descendents and Latinos are 1.6 and 1.5 times more likely, respectively, to have diabetes than whites of similar age. To date there has been limited data on the health status of minority communities in New Hampshire. Most of the health care data sets currently available in the state do not have a sufficient number of minorities to allow for meaningful analysis. The lack of health data has hindered efforts in the state to assess the health care needs of minority populations and to provide services to address those needs.

In an effort to address this data gap, the New Hampshire Minority Health Coalition and its community partners* successfully competed for a grant from the Centers for Disease Control and Prevention as part of the Racial and Ethnic Approaches to Community Health (REACH 2010) program (www.cdc.gov/reach2010). One of the primary goals of the New Hampshire REACH 2010 Initiative has been to describe the health status, health care acess, and health behaviors of African-descendent and Latino communities in Hillsborough County.

The REACH 2010 Initiative surveyed 168 African-descendent and 464 Latino residents (age 18 and over) in Hillsborough County between March 2002 and September 2003. The survey consisted of 160 questions and covered topics including demographic status, socioeconomic status, access to health care, attitudes towards health care, health behaviors, health status, knowledge of diabetes and hypertension, and diabetes and hypertension screening questions. The survey was designed with input from African-descendent and Latino advisors. Some questions were taken from validated survey instruments including the New Hampshire Behavioral Risk Factor Surveillence System (BRFSS) and the SF36, a survey assessing the impact of health on quality of life. All survey respondents were also weighed, had their blood pressure measured, and were administered a random blood glucose test to screen for diabetes.

Unlike the BRFSS, which is a telephone survey, the REACH 2010 Initiative survey was conducted by face-to-face interviews in participant homes. Peer educators from each community were trained to administer the survey and the screening tests. The initial interviews were observed by an Initiative researcher to ensure consistency. The peer educators had a protocol to follow in case they found a person with high blood pressure or elevated blood sugar, or if a participant reported symptoms suggestive of a stroke or heart attack. In addition to the survey and screening, participants were offered a 20-minute education session on diabetes, hypertension, and healthy lifestyles. During this session, they were helped to identify their personal risk factors for developing diabetes or hypertension. The survey and education among Latinos were generally conducted in Spanish, though the choice of language was given to people who also spoke English.

Participants for the survey were recruited through a snowball sampling technique. The peer educators began talking to friends and acquaintances about their work and the

importance of having people participate in the study. The community health centers in Manchester and Nashua also recruited participants from among their patients. From the initial contacts and surveys, other participants were recruited by word-of-mouth.

Analysis of the data is underway. When available, data will be posted on the New Hampshire Minority Health Coalition website at www.nhhealthequity.org The New Hampshire Diabetes Education Program plans to include more data on minorities in future editions of the databook.

***New Hampshire REACH 2010 Initiative partners**: Dartmouth-Hitchcock-Manchester, Manchester Community Health Center, Manchester Public Health Department, Nashua Area Health Center, New Fellowship Baptist Church, Southern New Hampshire Area Health Education Center, and Southern New Hampshire Services.

CONCLUSIONS

In 2002, 6.2% of adults in New Hampshire reported being diagnosed with diabetes. The prevalence of diabetes increased with increasing age, from 1.0% among persons 18-24 years of age to 17.6% among persons ≥65 years of age. Three factors are likely to contribute to an increasing prevalence of diabetes in New Hampshire. First, more adults in the state are overweight. Second, fewer adults are physically active. Third, the state's population is becoming older.

Primary prevention for diabetes consists of maintaining appropriate body weight, good nutrition, and adequate amounts of physical activity. Secondary and tertiary prevention consist of good glucose control and interventions such as immunizations and foot and eye examinations. The data in this report indicate that these types of clinical interventions are underutilized. The morbidity and mortality associated with diabetes could be decreased if all persons with the disease received the recommended clinical preventive services.

CONTRIBUTORS

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BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM QUESTIONS

Diabetes

Have you ever been told by a doctor that you have diabetes? (If "Yes" and female, ask "Was this only when you were pregnant?")
1=Yes
2=Yes, but female told only during pregnancy
3=No
7=Don't know/Not sure
9=Refused

When was the last time you had an eye exam in which the pupils were dilated? This would have made you temporarily sensitive to bright light.
1=Within the past month
2=Within the past year
3=Within the past 2 years
4=2 or more years ago
8=Never
7=Don't know/Not sure
9=Refused

Has a doctor ever told you that diabetes has affected your eyes or that you had retinopathy?
1=Yes
2=No
7=Don't know/Not sure
9=Refused

About how many times in the past 12 months has a health professional checked your feet for any sores or irritations?
__ __=Number of times
88=None
77=Don't know/Not sure
99=Refused

About how often do you check your feet for any sores or irritations? (Include times when checked by a family member or friend, but do not include times when checked by a health professional.)
1=__ __ Times per day
2=__ __ Times per week
3=__ __ Times per month
4=__ __ Times per year
888=Never
555=No feet
777=Don't know/Not sure
999=Refused

Have you ever had any sores or irritations on your feet that took more than four weeks to heal?
1=Yes
2=No
7=Don't know/Not sure
9=Refused

A test for hemoglobin "A one C" measures the average level of blood sugar over the past three months. About how many times in the last year has a doctor, nurse, or other health professional checked you for hemoglobin "A one C"?
__ __=Number of times
88=None
98=Never heard of hemoglobin "A one C" test
77=Don't know/Not sure
99=Refused

Are you now taking diabetes pills?
1=Yes
2=No
7=Don't know/Not sure
9=Refused

Are you now taking insulin?
1=Yes
2=No
9=Refused

Have you ever taken a course or class in how to manage your diabetes yourself?
1=Yes
2=No
7=Don't know/Not sure
9=Refused

About how often do you check your blood for glucose or sugar? Include times when checked by a family member or friend, but do not include times when checked by a health professional.
1__ __ Times per day
2__ __ Times per week
3__ __ Times per month
4__ __ Times per year
888=Never
777=Don't know/Not sure
999=Refused

About how many times in the past 12 months have you seen a doctor, nurse, or other health professional for your diabetes?
__ __=Number of times
88=None
77=Don't know/Not sure
99=Refused

How old were you when you were told you have diabetes?
__ __=Age in years
77=Don't know/Not sure
99=Refused

Body Mass Index

About how much do you weigh without shoes?
__ __ __=Weight (pounds)
777=Don't know/Not sure
999=Refused
About how tall are you without shoes?
__/__ __=Height (ft/inches)
777=Don't know/Not sure
999=Refused

Leisure-time Physical Activity

During the past month, other than your regular job, did you participate in any physical activities or exercise such as running, calisthenics, golf, gardening, or walking for exercise?
1=Yes
2=No
7=Don't know/Not sure
9=Refused

Influenza Immunization

During the past 12 months, have you had a flu shot?
1=Yes
2=No
7=Don't know/Not sure
9=Refused

Pneumococcal Immunization

Have you ever had a pneumonia shot? This shot is usually given only once or twice in a person's lifetime and is different from the flu shot. It is called the pneumococcal vaccine.
1=Yes
2=No
7=Don't know/Not sure
9=Refused

Hypertension

Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?
1=Yes
2=No
7=Don't know/Not sure
9=Refused

Elevated Cholesterol

Have you every been told by a doctor, nurse, or other health professional that your blood cholesterol is high?
1=Yes
2=No
7=Don't know/Not sure
9=Refused

Smoking

Have you smoked at least 100 cigarettes in your entire life?
1=Yes
2=No
7=Don't know/Not sure
9=Refused

Do you now smoke cigarettes everyday, some days, or not at all?
1 Every day
2 Some days
3 Not at all
9 Refused

Oral Health

How long has it been since you last visited the dentist or a dental clinic for any reason?
1=Within the past year
2-Within the past 2 years
3=Within the past 5 years
4=5 or more years ago
7=Don't know/Not sure
8=Never
9=Refused

General Health Status

Would you say that in general your health is:
1=Excellent
2=Very good
3=Good
4=Fair
5=Poor
7=Don't know/Not sure
9=Refused